

BOIKETLO THAMAGA

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Driver's Licence: C1



I am hoping to be given a chance wherein I can maximize my abilities and aid in the expansion of the knowledge in the science field. Dedicated to student success and educational excellence. Positive attitude, hardworking, the love and curiosity to bring change/solution to where I am involved set me apart.

Skills

- Computer
- Communication
- Troubleshooting
- Team player
- Analytical
- Leadership
- Problem-solving
- Technical

Experience

02/2022 – 10/2023

Research Assistant/ University of the Free State

Searching literature on the research topic, developing a project methodology, performing lab work, developing resources for project management, operating XRD, SEM, TEM, PL, UV-Vis, XPS, and Gas Sensing instruments, collecting data, entering and analyzing data, and preparing reports and presentations.

02/2022 – 10/2023

Laboratory Assistant / University of the Free State

Prepare the equipment before each experiment, make sure students understand the concepts of the experiment, comply with the procedure, uphold safety regulations, record activities, conducting and demonstrating the experiments for first year physics students, and maintain the equipment.

02/2022 – 10/2023

Tutor / University of the Free State

Tutoring and marking of scripts. Help students understand the concepts, implement strategies based on the learning and understanding processes of individual students which provides independence and flexibility for students.

02/2020 – 12/2020

Chemistry Laboratory Assistant / University of Limpopo

Assisting students in setting up experiments, cleaning, sterilizing, and maintaining laboratory equipment, organizing and cleaning the laboratory space, maintaining adherence to safety guidelines and regulations, taking samples for analysis, scientific writing and record-keeping, and ensuring that the laboratory is full always stocked with all the needed materials for the experiments.

01/2020 – 12/2020

Physics Laboratory Assistant / University of Limpopo

Prepare the equipment before each experiment, make sure students understand the concepts of the experiment, comply with the procedure, uphold safety regulations, record activities, conducting and demonstrating the experiments, marking and assess the reports for first-year physics students, and maintain the equipment.

Education

04 2024

Master of Science in Physics / University of the Free State

Accumulated Cum-Laude. Laboratory-based research project focusing on Microsystems Technology.

04 2021

Honours Science in Physics / University of Limpopo

Research Project (Honours), Quantum Mechanics, Statistical Mechanics, Solid State Physics and Electrodynamics.

04 2020

BSc (Physical Science) / University of Limpopo

General Chemistry, Health Education and Life Competencies, Differential and Integral Calculus, Set Theory, Linear and Abstract Algebra, General Physics, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Physical Chemistry, Classical Mechanics, Quantum Mechanics, Waves and Optics, Electrodynamics and Electronics, Solid State Physics, and Thermodynamics and Statistical Mechanics.

2014

National Senior Certificate / St Marks College

Sciences and Mathematics

Activities

Publications and Presentations

- **Boiketlo R.J. Thamaga**, Thabang J. Theka, Rapelang G. Motsoeneng, Liza Coetsee-Hugo, Hendrik C. Swart, David E. Motaung, Remarkable Surface Area

Engineering of Nanosheet-Assembled Hierarchical p-n Ag-Loaded NiO-CeO₂ Heterostructure for Superior Ethanol Sensing Performance, J. of Alloy and Comp. 976 (2024) 173110. <https://doi.org/10.1016/j.jallcom.2023.173110>

- **Boiketlo R.J. Thamaga**, Thabang J. Theka, Rapelang G. Motsoeneng, Katlego L. Morulane, Jodinio Lemena, Hendrik C. Swart, David E. Motaung Facile fabrication of p-n Heterostructure Based on Pt/NiO-CeO₂ Nanosheet-Assembled Hierarchical Structures for Selective Detection of Benzene Vapour, Surface and Interfaces. **(Under Review)**.
- **Boiketlo R.J. Thamaga**, Hendrik C. Swart, Peter R. Makgwane, Naveen Kumar, David E. Motaung. CHAPTER 13: MXenes for sensors, Micro and Nano Tech. (2024) 249-285. <https://doi.org/10.1016/B978-0-323-95515-7.00013-3>
- Thabang J. Theka, **Boiketlo R.J. Thamaga**, Hendrik C. Swart, Sefako J. Mofokeng, Teboho P. Mokoena, and David E. Motaung, Chapter 6. Metal sulfide nanomaterials for gaseous chemical sensing, Elsevier, **(Accepted for publication)**
- Thabang J. Theka, **Boiketlo R.J. Thamaga**, Hendrik C. Swart, Sefako J. Mofokeng and Teboho P. Mokoena, Chapter 3: Modifications of strategies of band gap alignment in 2D nanomaterial, Elsevier, **(Submitted)**
- Thabang J. Theka, **Boiketlo R.J. Thamaga**, Zamaswazi P. Tshabalala, Rapelang G. Motsoeneng, Hendrik C. Swart, David E. Motaung, Fabrication of Metal-Organic Frameworks derived Co₃O₄ loaded on TiO₂: Influence of Fe loading on the Co₃O₄/TiO₂ heterostructure for low-ppm Benzene detection, Appl. Surface Sci. 644 (2024) 158789. <https://doi.org/10.1016/j.apsusc.2023.158789>
- Attended the International FreeStatePhyChem-2022 Symposium, 18th of November 2022 at the University of the Free State, Bloemfontein, South Africa and presented the poster presentation titled “Selective detection of Acetone utilizing p-n junction NiO-CeO₂ heterostructures for gas sensing at low temperature performance.”low-temperature
- Attended the 9th South African Conference on Photonic Materials 2023, 8 – 12 May 2023, Skukuza, Mpumalanga, South Africa, and presented the poster presentation titled “Structural, optical, and low-temperature detection of acetone and ethanol induced by p-n NiO-CeO₂ loaded with Ag nanoparticles.”

Short Courses

- Microsoft Office,
- NMISA Laser Safety Course,
- Introduction to Applied Mathematics, and
- Computational Mathematics and Modelling.
- Cyber Security Course

Volunteer work

- In 2023 I was a coach for a ladies soccer team at University of the Free State.
- In 2017-2018 I was a peer educator at University of Limpopo.
- In 2010 I was a radio presenter at Sekhukhune radio station for a kids programme.

References

- Mrs Ramohale (Principal)
Thagaetala Secondary School
082 930 1807
- Mrs Tladi
Sekhukhune FM supervisor
072 072 7328
- Dr P.S Ntoahae (Physics Lecturer)
University of Limpopo
015 268 3341/ 082 200 5394
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- Miss GJ Odendaal (Senior Assistant Officer)
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